

**Amendment to the Claims:**

This listing of claims will replace all prior versions, and listing, of claims in the application.

1. (cancelled)
2. (previously presented) The method of channel estimation according to claim 1, wherein said step of performing channel coefficient estimation for substantially each of said plurality of frequency domain sub-carriers uses channel coefficient estimation benefits from said channel coefficient estimates for substantially all the other frequency domain sub-carriers of said plurality of frequency domain sub-carriers.
3. (previously presented) The method of channel estimation according to claim 2, wherein said plurality of frequency domain sub-carriers comprises substantially all the sub-carriers of said frequency domain signal.
4. (cancelled)
5. (cancelled)
6. (cancelled)
7. (previously presented) A method of channel estimation in a wireless orthogonal frequency division multiplexed (OFDM) communication system, comprising the steps of:  
  
receiving a signal in time domain; applying a Fourier transform to said received signal to obtain a frequency domain signal including a plurality of sub-carriers;  
  
estimating probabilities of coded bits for at least said plurality of frequency domain sub-carriers;

performing channel coefficient estimation for at least said plurality of frequency domain sub-carriers using channel coefficient estimates for at least one other of said plurality of frequency domain sub-carriers;

repeating said steps of estimating probabilities and performing channel coefficient estimation so as to improve iteratively an accuracy of said channel coefficient estimates and wherein the step of performing channel coefficient estimates comprises replacing previously estimated channel coefficients of said plurality of frequency domain sub-carriers with respective current channel coefficient estimates; and

wherein repeating said step of performing channel coefficient estimation comprises applying a cost function on an Expectation-Maximization algorithm on said plurality of frequency domain sub-carriers to improve said channel coefficient estimates.

8. (cancelled)

**9.** (previously presented) A method of channel estimation in a wireless orthogonal frequency division multiplexed (OFDM) communication system, comprising the steps of:

receiving a signal in time domain;

applying a Fourier transform to said received signal to obtain a frequency domain signal including a plurality of sub-carriers;

estimating probabilities of coded bits for at least said plurality of frequency domain sub-carriers;

performing channel coefficient estimation for at least said plurality of frequency domain sub-carriers using channel coefficient estimates for at least one other of said plurality of frequency domain sub-carriers;

repeating said steps of estimating probabilities and performing channel coefficient estimation so as to improve iteratively an accuracy of said channel coefficient estimates; and

wherein said step of performing a channel coefficient estimation comprises applying a forward-backward algorithm on said received signal to said plurality of channel coefficient estimates in which estimates are made in a first order of said plurality of frequency domain sub-carriers and subsequently estimates are made in a reversed order of said plurality of frequency domain sub-carriers so as substantially to equalise an estimation accuracy across said plurality of frequency domain sub-carriers.

**10.** (cancelled)